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dentine tubules and run their whole length to the point where the enamel or cement joins. This enables us better to understand the power of the dentist over us.

SUCCESSION IN FUNGI

Brown and Graff (Philip. Jour. Sci., VIII, Sec. C. I; 1913, p. 21) report studies on the succession of fungi growing on dung. This is a class of studies always of value to directors of laboratories, and more of such should be made. The authors' record that the moulds, as the *Mucors,* first appeared, followed by *Oospora.* These disappeared in about 10 days. Next appeared the sporophores of species of *Coprinus,* which persist for a long time. The authors believe the order of appearance is due to different periods of latency and rates of development of the spores of the species; and that the poor persistence of the early types were due to hurtful micro-organisms or to toxins formed in the dung about the fungi. Experiment showed that the *Mucors* were not short-lived on sterilized materials.

RUSTS AND THEIR HOST TISSUES

Tischler (Flora 104, 1911; Bot. Gaz., Aug., 1913) describes the relation between *Uromyces Pisi* and *Euphorbia Cyparissias,* its host in the æcidial stage. The rust winters in the buds of the subterranean shoots, and as these grow it tends to keep pace with them. If the parasite thrives the host is deformed in a characteristic way. The author investigated the following among other questions. Under what conditions do the shoots of the host outgrow, and escape as it were, the ill effects of the parasite? Along what routes do the hyphae of the rust run in keeping pace with the new growth? Just at what time in the cell history do the hyphæ change the cell so as to produce the deformed growths?

It was found that the shoots might grow away from the fungus by furnishing high temperature and other conditions which would force the growth of the host. Also when the rust approaches its fruiting stage the host may outgrow it. If kept in the dark so that æcidia do not form, the buds cannot grow away from the rust.

The hyphæ of the rust do not succeed in sending haustoria into the meristematic cells, and hence the deformation is not due to